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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,524	11/17/2000	Alain Charpentier	P06983US00/RFH	5323

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EXAMINER

KEBEDE, BROOK

ART UNIT PAPER NUMBER

2823

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/714,524

Applicant(s)

CHARPENTIER ET AL.

Examiner

Brook Kebede

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-17 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicants' election with traverse of the Group I invention, claim(s) 10-15 in Paper No. 10, filed on May 29, 2003, is acknowledged. The traversal is on the ground(s) that "the apparatus of Group II can also include a device which is equipped with an infrared laser to measure the thickness of the layer being processed. M.P.E.P. 806.05(e) clearly provides that if the apparatus claims include a claim 'means' for practicing the, process the claim is a linking claim and must be examined with the elected invention. If it is ultimately allowed, rejoinder is required" This is not found persuasive.

A restriction requirement between one set of apparatus claims and a set of process claims was issued in the Office action of Paper No. 9, mailed on March Many 6, 2003. "Section 121 [of Title 35 USC] permits a restriction for 'independent and distinct inventions,' which the PTO construes to mean that the sets of claims must be drawn to separately patentable inventions." See *Applied Materials Inc. v. Advanced Semiconductor Materials* 40 USPQ2d 1481, 1492 (Fed. Cir. 1996)(Archer, C.J., concurring in-part and dissenting in-part). An apparatus and the process of making the product using the apparatus are "two independent, albeit related inventions." See *In re Taylor*, 149 USPQ 615, 617 (CCPA 1966). "When two sets of claims filed in the same application are patentably distinct or represent independent inventions, the examiner is to issue a restriction requirement." See *In re Berg*, 46 USPQ2d 1226, 1233 n.10 (Fed. Cir. 1998).

The examiner, in issuing a restriction requirement, must demonstrate "one way distinctiveness." *Applied Materials Inc.* at 1492. As stated within the restriction requirement, "inventions are distinct if either or both of the following can be shown: (1) the process as

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claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)).” In this application, the examiner restricted the apparatus claims from the process claims on the grounds that “the process of Group I can be performed by apparatus (device) equipped with IR to measure the thickness of the layer (i.e., different from the instant application apparatus which utilizes indirect measurement of the thickness by manipulating the optical emission amplitude data whereas the apparatus that equipped with IR provides direct measurement) ,” and that, as a result, a restriction was necessary.

In addition to one-way distinctiveness, the examiner must show “why it would be a burden to examine both sets of claims.” *Applied Materials Inc.* at 1492. “A serious burden on the examiner may be *prima facie* shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search.” MPEP 803. An explanation was provided in the restriction requirement. Specifically, in addition to being distinct, the examiner indicated that restriction is proper because the apparatus claims and the process claims “have acquired a separate status in the art.”

The criteria of distinctness and burdensomeness have been met, as demonstrated hereinabove. Accordingly, the restriction requirement in this application is still deemed proper and is therefore **made FINAL**.

Claims 16 and 17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in Paper No 10.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10, 11 and 13-15 rejected under 35 U.S.C. 102(b) as being anticipated by Schoenborn (US/5,362,356).

Re claim 10, Schoenborn discloses a method for measuring a thickness of a layer (see abstract), said layer to be measured being deposited on an underlying layer and being part of an integrated circuit, said method being carried out, in real time, through an engraving reaction during advance of an engraving front relative to at least a portion of said integrated circuit, said engraving reaction being applied to said underlying layer so as to generate a light emission having at least one spectral component, said method comprising the steps of: measuring an amplitude of light (see Fig. 3) emitted during the engraving reaction, in a selected spectral range comprising said at least one spectral component ; establishing a distribution of said amplitude as a function of time (see Fig. 3); determining, from said distribution, a transition of said amplitude (see Fig. 3) as said engraving front passes from said layer to be measured to said underlying layer; and computing the thickness of said layer to be measured, based on said distribution and said transition, by correlating said transition to said distribution (see Fig. 4) (see Figs. 2-9; Col. 4, line 18 – Col. 13, line 34).

Re claim 11, as applied to claim 10 above, Schoenborn disclose all the claimed limitations including the limitation wherein said spectral component of said underlying layer is a

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perceptible emission wavelength characteristic of said underlying layer (see Figs. 2-9; Col. Col. 4, line 18 – Col. 13, line 34).

Re claim 13, as applied to claim 10 above, Schoenborn disclose all the claimed limitations including the limitation wherein said correlation of said distribution to said transition is proportional to an engraving time period measured between a beginning point of the engraving reaction at which said amplitude constitutes a reference amplitude, and a further point in time corresponding to an increase of 50% in said reference amplitude in said distribution (see Figs. 2-9; Col. Col. 4, line 18 – Col. 13, line 34).

Re claim 14, as applied to claim 13 above, Schoenborn disclose all the claimed limitations including the limitation wherein said thickness of said layer to be measured is calculated on the basis of a linear combination linking said engraving time and the computed thickness of the layer to be measured (see Figs. 2-9; Col. Col. 4, line 18 – Col. 13, line 34).

Re claim 15, as applied to claim 10 above, Schoenborn disclose all the claimed limitations including the limitation wherein the step comprising measuring the amplitude of the light emitted is performed by means of a monochromatic (see Figs. 2-9; Col. Col. 4, line 18 – Col. 13, line 34).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoenborn (US/5,362,356) in view of Grimbergen et al. (US/6,081,334).

Re claim12, as applied to claim 10 above, Schoenborn disclose all the claimed limitations including the limitation wherein said layer to be measured comprises a second layer of silicon oxide and the underlying layer comprises a barrier layer of silicon nitride, (see abstract) . However, Schoenborn does not specifically select the wave length at 405 nm.

Grimbergen et al. disclose selecting wavelength at 405 nm (see Fig. 5) associated with waveform spectra. As Grimbergen et al. disclose, such selection is done in order to provide easily characterizable wave form pattern (see Col. 13, lines 1-32).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Schoenborn reference with wave length of 405 as taught by Grimbergen et al. because the chosen spectra wavelength would have provided easily characterizable wave form pattern and detectable.

Response to Arguments

7. Applicants' arguments with respect to claims 11-15 have been considered but are moot in view of the new ground(s) of rejection necessitated by the amendment filed on February 12, 2003.

Conclusion

8. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the

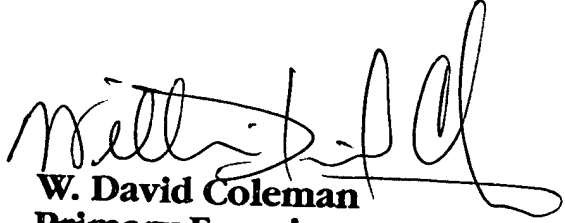
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organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede


August 2, 2003


W. David Coleman
Primary Examiner